We Claim:

1. A fluid flow generating device comprising:

a housing, said housing having a plurality of spaced apertures therein for fluid ingress and fluid egress therethrough;

a flexible membrane, said flexible member and said housing forming a fluid chamber in said housing; and

a vibrator member, said vibrator member vibrating said flexible membrane to cause a volume of the fluid chamber to periodically increase and decrease with the decrease in volume of the fluid chamber simultaneously expelling a fluid vortex from each of the plurality of spaced apertures.

2. The fluid flow generating device of claim 1 wherein the periodically increase and decrease in the volume of the fluid chamber is insufficient to produce turbulent flow.

3. The fluid flow generating device of claim 1 wherein the fluid chamber contains a fluid selected from the group consisting of air, water and oil.

4. The fluid flow generating device of claim 1 wherein the increase in the volume produces a lateral fluid flow past electronic components to thereby cool the electronic components.

5. The fluid flow generating device of claim 1 wherein the vibrator member comprises an eccentric rotating weight secured to said membrane.

6. The fluid flow generating device of claim 1 wherein the vibrator member comprises a magnet within a changing electrical field.

7. The fluid flow generating device of claim 1 wherein the fluid flow generating device comprises a structural element of an item to be cooled.

8. The fluid flow generating device of claim 1 wherein a laminar flow condition exists within the fluid vortex expelled from each of the plurality of apertures.

9. The fluid flow generating device of claim 1 wherein each of the fluid vortex expelled from each of the plurality of spaced apertures coalesce to create a larger fluid vortex.

10. A flat fan device for heat transfer comprising:

a housing, said housing having an aperture therein for ingress and egress of fluid therethrough;

a piston, said piston and said housing forming a fluid chamber in said housing; and

a vibrator, said vibrator comprising a rotatable offset weight said vibrator vibrating said piston to cause a volume of a fluid in the chamber to periodically increase and decrease with the decrease in the volume of the fluid chamber expelling a fluid vortex from the aperture, said fluid vortex moving in a direction normal to the housing and an increase in the volume of the fluid chamber producing a fluid flow latterly along the housing until the fluid can enter the fluid chamber through the aperture.

11. The flat fan device of claim 10 wherein the piston comprises a flexible membrane and the housing includes a plurality of apertures concentrically arranged for discharging equal amounts of fluid therethrough at equal time intervals.

12. The flat fan device of claim 11 wherein each of the plurality of the apertures has a radiused lip within the fluid chamber.

13. The flat fan device of claim 10 including a plurality of apertures located in a spaced arrangement in said housing.

14. The flat fan device of claim 13 wherein the plurality of apertures located in a spaced arrangement in said housing are in fluid communication with a common chamber located proximate said housing.

15. The flat fan device of claim 14 wherein the plurality of apertures located in a spaced arrangement in said housing are concentrically positioned to provide substantial equal flow rates through each of the plurality of apertures.

16. The flat fan device of claim 15 wherein the Reynolds number of fluid flowing through said apertures is less than 2000 to ensure a laminar flow condition.

17. The method of cooling an object comprising:

flexing a membrane in a first direction to direct a fluid in a normal direction through a plurality of spaced apertures to create a plurality of radially expanding fluid torus shaped vortexes each traveling normally away from said plurality of spaced apertures at the same velocity to cause each of the radially expanding fluid torus shaped vortexes to radially expand into an adjoining radially expanding fluid torus shaped vortexes thereby causing the radially expanding fluid torus shaped vortexes to coalesce into a single composite radially expanding torus shaped vortex; and

flexing the membrane in a second direction to allow fluid to move laterally along a housing surface until the fluid is drawn into a fluid chamber proximate the membrane.

18. The method of claim 17 including cooling an object by maintaining the fluid flow in a laminar flow state.

19. The method of cooling of claim 18 by providing a curved lip on each of the apertures to produce a Venturi effect.

20. The method of cooling of claim 19 wherein flexing the membrane comprises flexing the membrane with a rotating shaft having an offset weight.

21 The method of cooling of claim 20 including concentrically spacing the apertures to form areas of equal flow through each of the apertures.

22. The method of cooling of claim 20 by maintaining the fluid in a laminar flow state.

23. The method of cooling of claim 20 including the step of placing a cooling device in an enclosure to produce circulation of fluid within the enclosure.

24. The method of cooling of claim 20 including the step of securing the membrane to a housing and securing the housing to an article to be cooled.

25. The method of cooling of claim 18 including the step forming a curved lip in the chamber and a sharp lip on the outside of the chamber.